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but this is questioned by Saltet, who finds that different micro-organisms are concerned in the process, and that the reduction proceeds in stages, as is the case with the reduction of nitrates to ammonia. Saltet has isolated a new micro-organism, *Bacillus desulfuricans*, which reduces sulfates to sulfites, but produces no hydrogen sulfid.

It has been found by Matignon that metallic magnesium liberates from their oxids not only thorium, cerium and lanthanum, but also praseodymium, neodymium and samarium. Nitrogen, but not argon, is rapidly absorbed by all of these metals. When the last three are obtained from their oxids in the presence of hydrogen, they unite with it to form hydrides, which are dissociated when strongly heated. Moissan finds that the carbide of samarium, SmC_2 , can be formed in the electric furnace in minute, transparent, yellow, hexagonal crystals. It is decomposed by water, the chief gaseous product being acetylene, though considerable hydrogen and members of the paraffin series are also formed. In this action it closely resembles the carbide of yttrium.

THE fact that Dewar has found hydrogen to be a constituent of the atmosphere gives much interest to the discovery of Gautier, that hydrogen is formed by the action of water on granitic rocks at temperatures considerably below a red heat. In one experiment a granite rock was heated with phosphoric acid and gave 1,400 cc. of gas per kilo, 916 cc. of which was hydrogen. With water, the quantity liberated is somewhat less. Ammonia is formed at the same time, and Gautier concludes that both these gases are derived from the action of water on nitrides, chiefly iron nitride, though possibly some of the hydrogen may come from carbides. Matteucci found during a recent eruption of Vesuvius, pieces of rock, coated with ammonium chloride and iron nitride, which would seem to show a close relation between these substances.

In a short paper in the *Berichte*, Giesel confirms the observation of Walkhoff as to the effect of radio-active substances on the skin, similar to that of the Röntgen rays. He placed a celloloid capsule containing a quarter of a gram of radium, under his arm, and in two

hours a slight reddening was apparent. In the course of two or three weeks considerable inflammation was present, with darkening, and finally loss of the skin. A similar action was found to take place on the leaves of living plants, and salts, glass and paper were also affected.

J. L. H.

ZOOLOGICAL NOTES.

DR. ANTONIO PORTA, of the Institute of Zoology and Comparative Anatomy at the University of Parma, has lately published in the Proceedings of the Royal Institute of Science and letters of Lombardy his researches on *Aphrophora spumaria* and, in a footnote, he says, "I had already finished the present paper when I received a pamphlet by Professor Morse in which he discusses the formation of the froth in the *Aphrophora spumaria*. It was with genuine satisfaction that I found there a confirmation of observations that I had made. Moreover, I repeated one of his excellent experiments, which leaves no doubt whatever of the fact that the insect emits a liquid only. Placing a larva on a piece of absorbent paper in order to dry it and then upon a glass, if we allow a drop of our saliva to fall upon it, it begins to fill this liquid with air-bubbles."

It is a curious fact that Mr. Morse gave an account of the manner in which the so-called spit-insect makes the froth on grass in his 'First Book of Zoology' twenty-five years ago. German editions appeared in Stuttgart and Berlin, an English edition was also published, and finally the book was translated into Japanese, and yet every general work on entomology has repeated the erroneous ideas regarding the habits of this creature. Even the last volume of the Cambridge Natural History series continues the error. In May of last year Mr. Morse published in the *Popular Science Monthly* an extended account with illustrations explaining more in detail the habits of the larva, and its method of forming the froth and it is to this paper that the Italian naturalist refers.

NOVA PERSEI.

PROFESSOR EDWIN B. FROST writes to the *Astronomical Journal* from Dartmouth College,